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| 10/644,950 | 08/21/2003 | Kazuhiko Tsuda | 1035-455 | 7101 |
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| NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714 | | | EXAMINER NGO, HUYEN LE | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

2871

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Species I (Figs. 1-13, claims 1-3, 7, 9, 11 and 12) in the reply filed on January 14, 2005 is acknowledged.

Claims 4-6, 8 and 10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Okamoto et al. (US6281952B1).

With respect to claims 1 and 11-12, Okamoto et al. teach (Figs. 23-27) forming an active matrix substrate used for a liquid crystal display device of a transfective type that includes

- counter electrode 502
- pixel electrodes each having a reflective electrode 19 and a transparent electrode 20, wherein:
 - (i) a reflective electrode 19 and

(ii) an adjacent transparent electrode 20 adjacent to said reflective electrode without being electrically connected are positioned in such a manner that

(A) a border of a reflection region to which said reflective electrode applies a voltage and

(B) a border of a transmission region to which said adjacent transparent electrode applies a voltage at least partly overlap or are closely located with each other, when viewed in a normal direction of a display surface of said active matrix substrate.

Claim 2:

- an insulating layer 25 sandwiched between said reflective electrode and said transparent electrode, said transparent electrode being on an incident side of light from a light source and said reflective electrode being on a side of a surface facing a liquid crystal layer, an edge portion of said reflective electrode partly superposing an edge portion of said adjacent transparent electrode adjacent to said reflective electrode without being electrically connected, when viewed in the normal direction of the display surface of said active matrix substrate (see Fig. 24).

wherein:

Claim 3:

- the insulating layer has an opening 10 at a portion corresponding to said transmission region.

Claim 7:

- said reflective electrode 19 covers at least part of gate wiring 23, when viewed in the normal direction of the display surface of said active matrix substrate, and said reflective electrode covers gate wiring different from gate wiring that drives a pixel of said reflective electrode.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al. (US6734935B2).

With respect to claims 1 and 11-12, Kim et al. teach (Figs. 6-7) forming an active matrix substrate used for a liquid crystal display device of a transflective type that includes:

- counter electrode (common electrode)
- pixel electrodes each having a reflective electrode 290 and a transparent electrode 270, wherein:
 - (i) a reflective electrode 290 and
 - (ii) an adjacent transparent electrode 270 adjacent to said reflective electrode without being electrically connected are positioned in such a manner that

(A) a border of a reflection region to which said reflective electrode applies a voltage and

(B) a border of a transmission region to which said adjacent transparent electrode applies a voltage at least partly overlap or are closely located with each other, when viewed in a normal direction of a display surface of said active matrix substrate.

Claim 2:

- an insulating layer 280 sandwiched between said reflective electrode and said transparent electrode, said transparent electrode being on an incident side of light from a light source and said reflective electrode being on a side of a surface facing a liquid crystal layer, an edge portion of said reflective electrode partly superposing an edge portion of said adjacent transparent electrode adjacent to said reflective electrode without being electrically connected, when viewed in the normal direction of the display surface of said active matrix substrate (see Fig. 7).

wherein:

Claim 3:

- the insulating layer has an opening 291 at a portion corresponding to said transmission region.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2871

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al. (US6281952B1) as applied to claim 2 above and further in view of Tanaka et al. (US6791648B2).

Okamoto et al. fail to disclose the feature of claim 9.

Tanaka et al. teach (Fig. 3) forming an active matrix substrate used for a liquid crystal display device of a transflective type, used for a liquid crystal display device of the normally white mode, that further includes a light-shielding layer 111 located corresponding to a blank region that is neither said reflection region nor said transmission region for high quality display without inferior quality display and inferior contrast, thus for a liquid crystal display device of the normally white mode (col. 24 lines 25-27).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify an active matrix substrate used for a liquid crystal display device of a transflective type as Okamoto et al. disclosed with a light-shielding layer 111 located corresponding to a blank region that is neither said reflection region nor said transmission region for high quality display without inferior quality display and inferior contrast, thus for a liquid crystal display device of the normally white mode, as taught by Tanaka et al. (col. 24 lines 25-27).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US6734935B2) as applied to claim 2 above and further in view of Tanaka et al. (US6791648B2).

Kim et al. fail to disclose the feature of claim 9.

Tanaka et al. teach (Fig. 3) forming an active matrix substrate used for a liquid crystal display device of a transflective type, used for a liquid crystal display device of the normally white mode, that further includes a light-shielding layer 111 located corresponding to a blank region that is neither said reflection region nor said transmission region for high quality display without inferior quality display and inferior contrast, thus for a liquid crystal display device of the normally white mode (col. 24 lines 25-27).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify an active matrix substrate used for a liquid crystal display device of a transflective type as Kim et al. disclosed with a light-shielding layer 111 located corresponding to a blank region that is neither said reflection region nor said transmission region for high quality display without inferior quality display and inferior contrast, thus for a liquid crystal display device of the normally white mode, as taught by Tanaka et al. (col. 24 lines 25-27).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Hastings et al. (US 5365355 A) disclose light blocking, pixel enhancement and photocurrent reduction in active matrix liquid crystal displays.

Song et al. (US 6614496 B1) disclose a transflective liquid crystal display device having reflective electrode with a light-transmitting hole, situated below a transparent electrode.

Moon et al. (US 20030025859 A1) disclose a transreflective type LCD with the pixel electrode including a reflective electrode for reflecting a first light from an external and a transmissive electrode for transmitting a second light generated in the transreflective type LCD.


Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (571) 272-2295. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (571) 272-2293.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

March 31, 2005



Julie-Huyen L. Ngo
Primary Patent Examiner
Art Unit 2871